

The diagram illustrates a hydraulic system. At the top, a cylinder (2) is shown with a piston rod (8) connected to a load (10). A position sensor (12) is mounted on the load. The cylinder is divided into two chambers (4 and 64) by a piston (14). The chambers are connected to a hydraulic circuit. The circuit includes a pump (142) and a valve (V1, 144). The pump is connected to the chamber 64 via a line (66) and a pressure sensor (PT4, 66). The chamber 4 is connected to the valve (V1, 144) via a line (84) and a pressure sensor (PT1, 86). The valve (V1, 144) is connected to the chamber 64 via a line (146) and a pressure sensor (PT3, 76). The valve (V1, 144) is also connected to a tank (94) via a line (96) and a pressure sensor (PT2, 96). The tank (94) is connected to the chamber 4 via a line (74) and a pressure sensor (PT3, 76). The pressure sensor (PT3, 76) is labeled "Pressure".

Figure 1

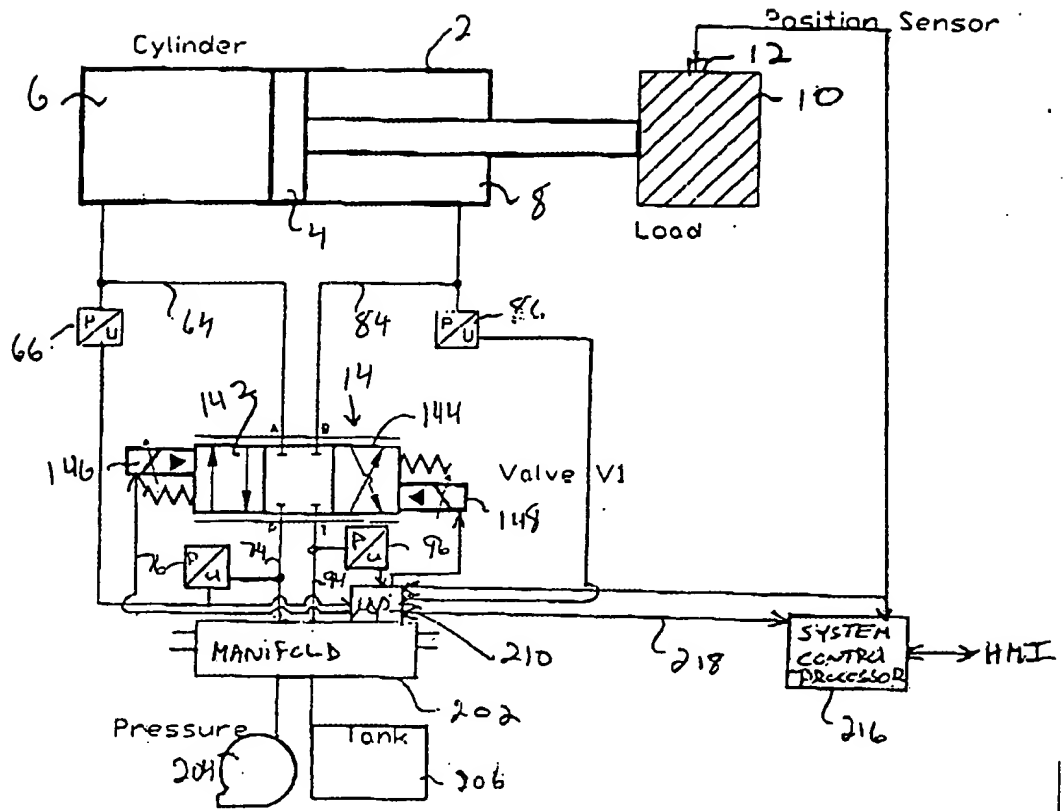


Figure 2

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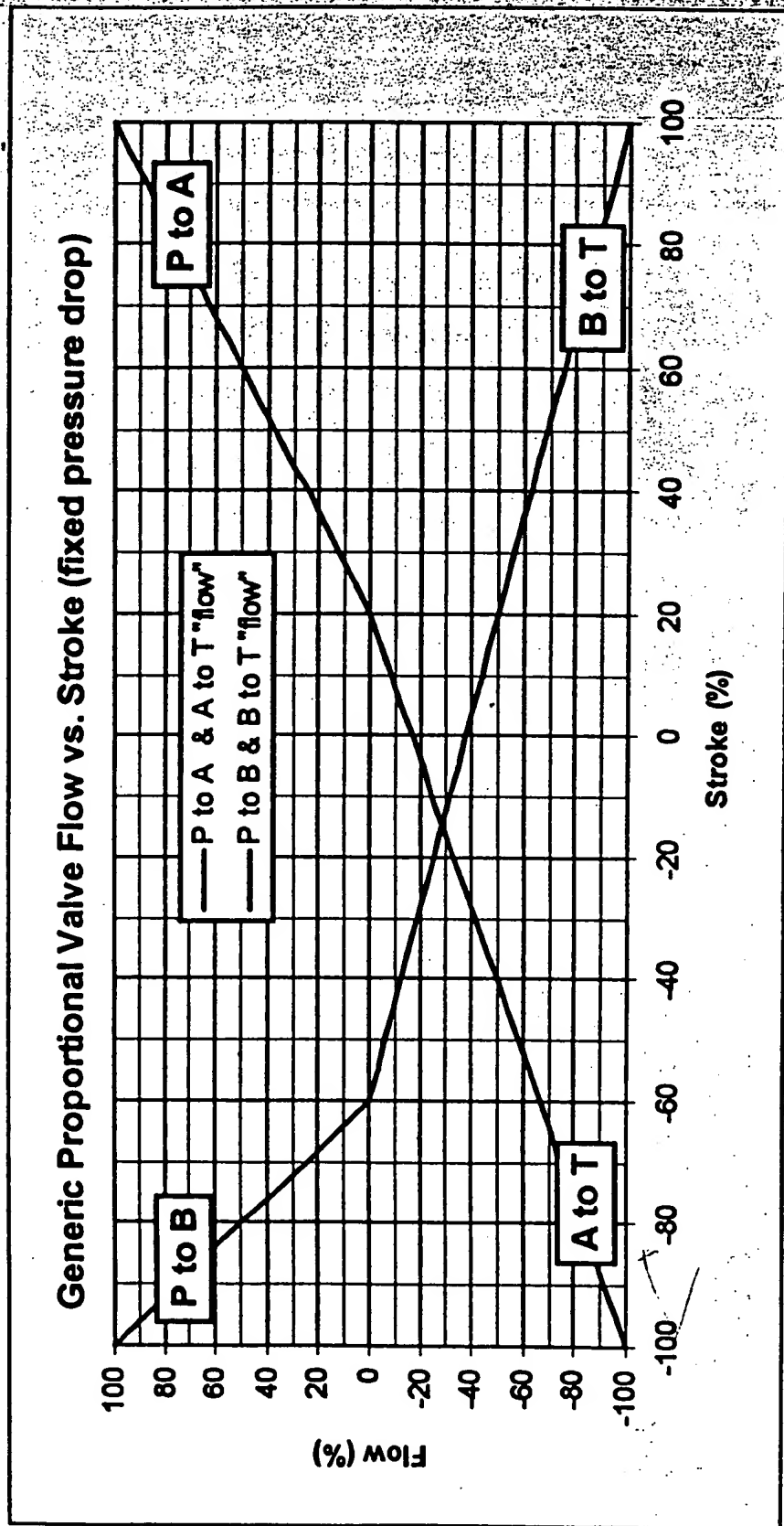


Figure 3: Generic Proportional Valve Flow vs. Stroke

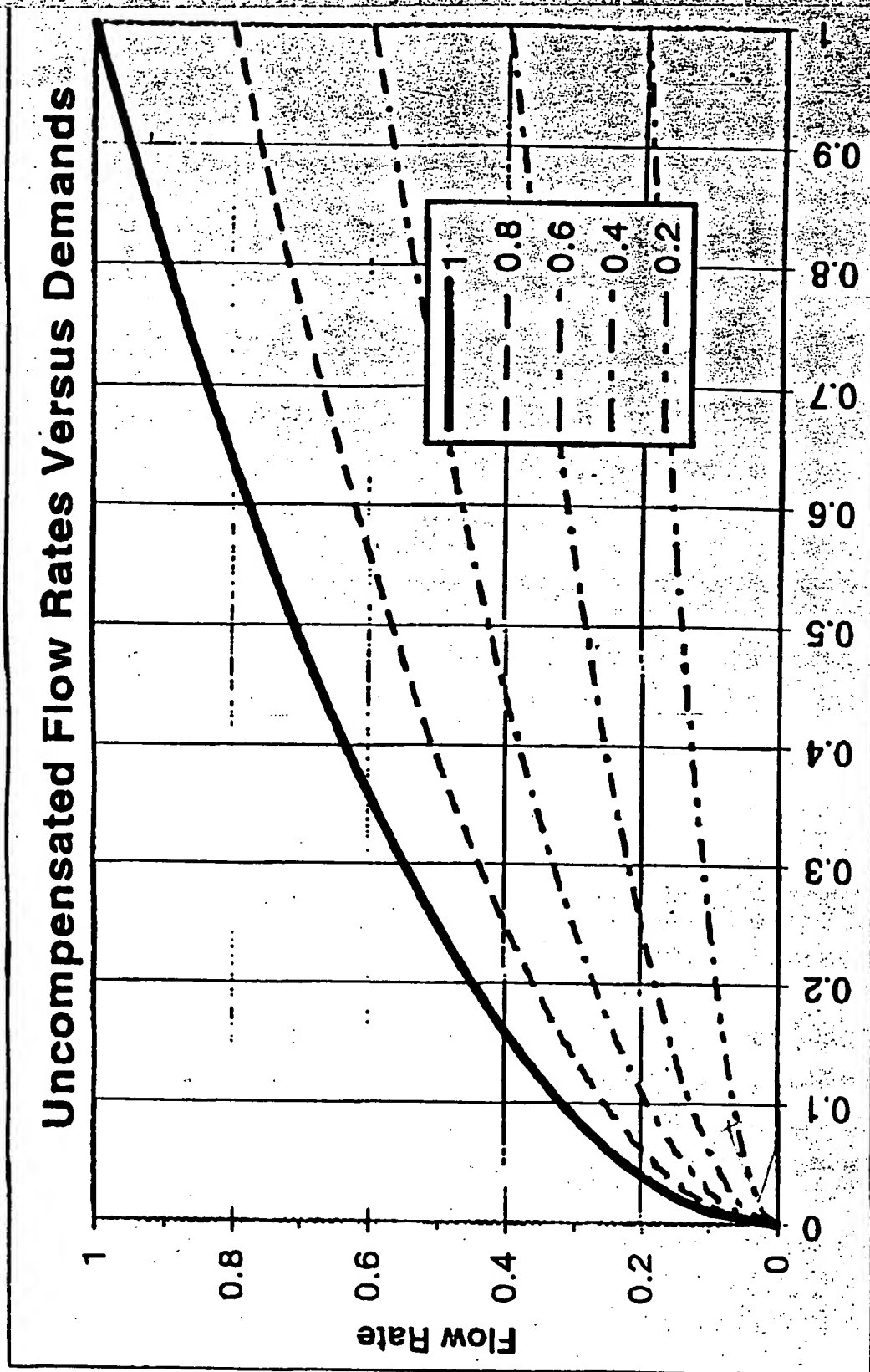


Figure 4: Uncompensated Flow Rates Versus Demands

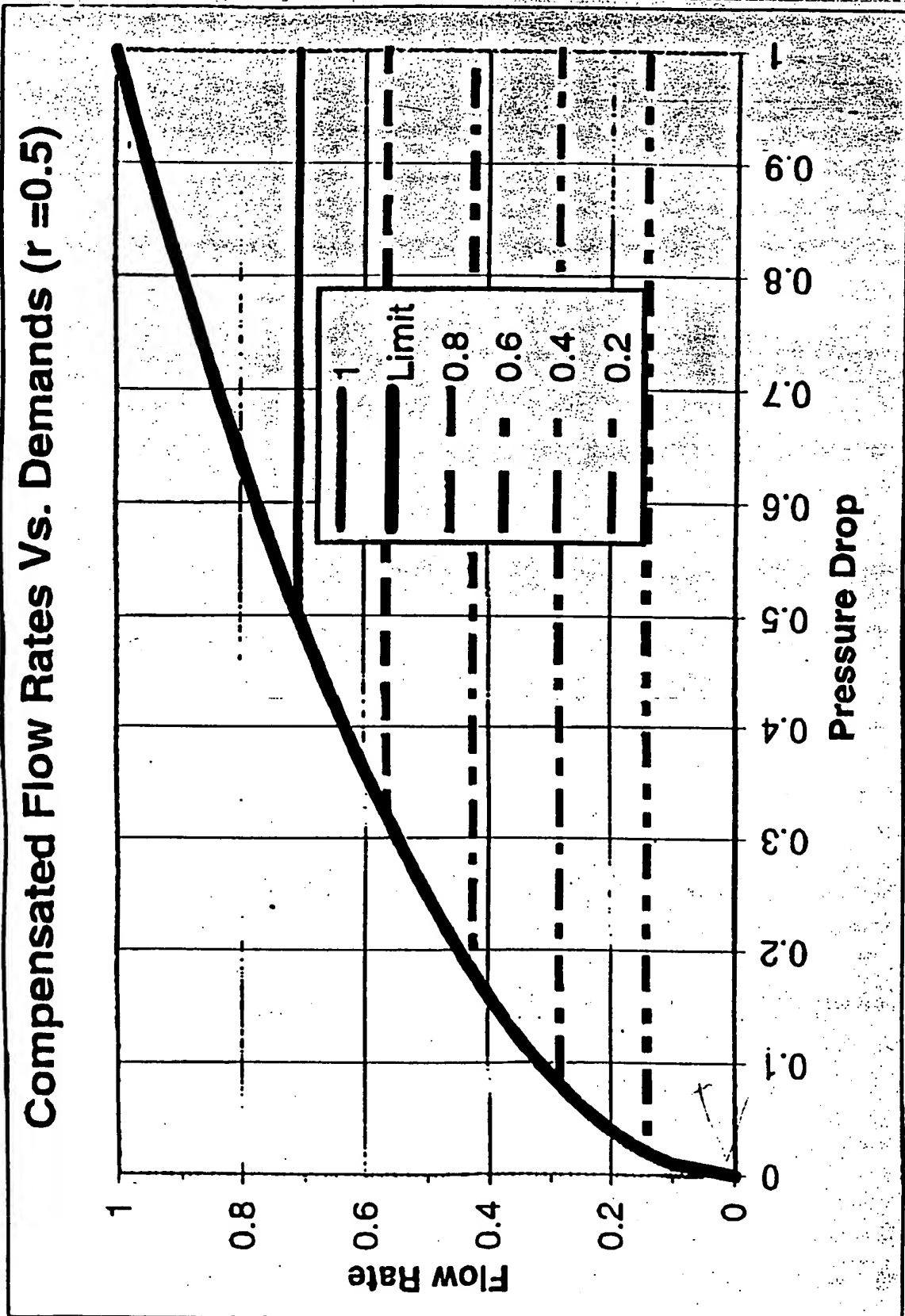
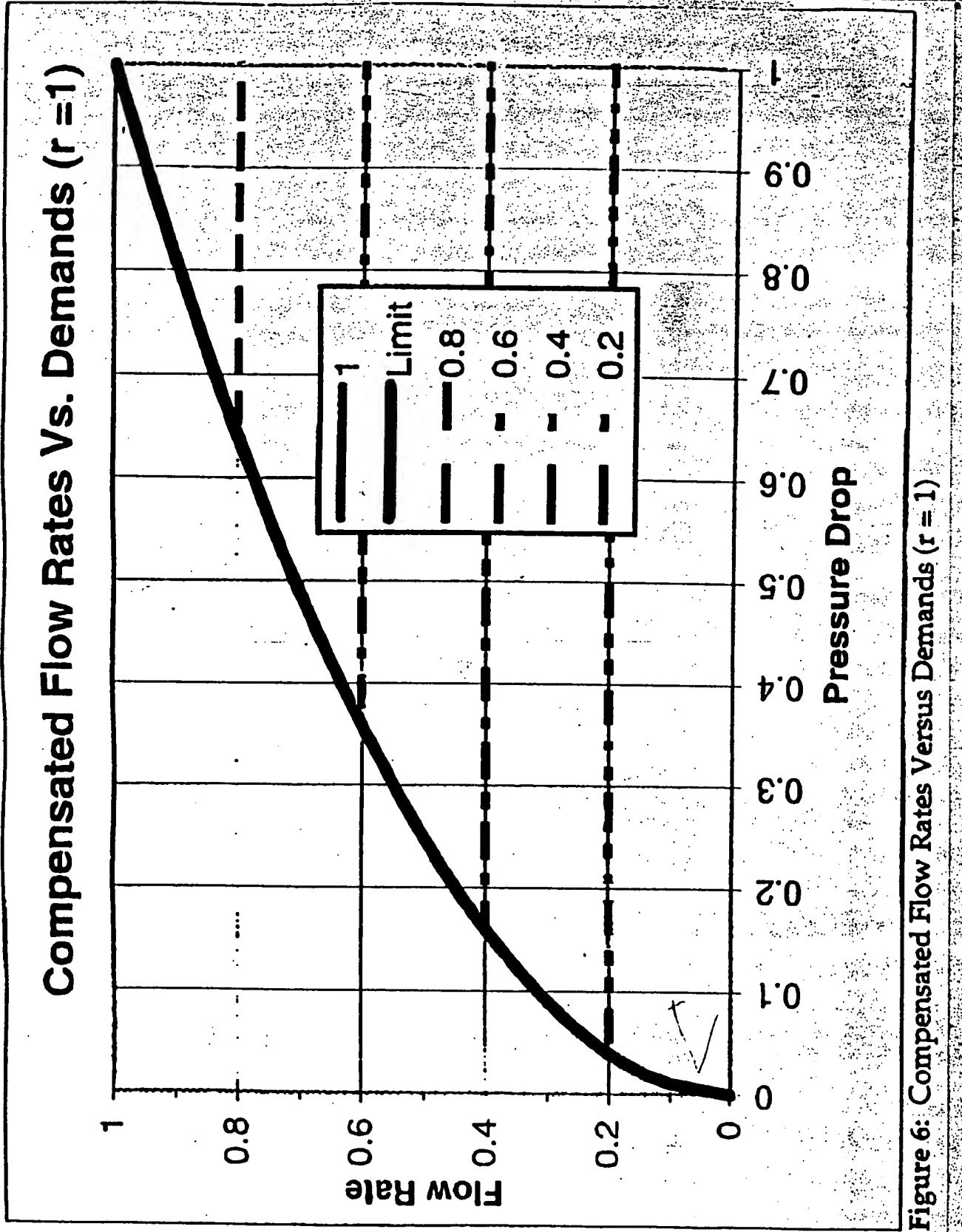


Figure 5: Compensated Flow Rates Versus Demands ($r=0.5$)

Figure 6: Compensated Flow Rates Versus Demands ($r=1$)

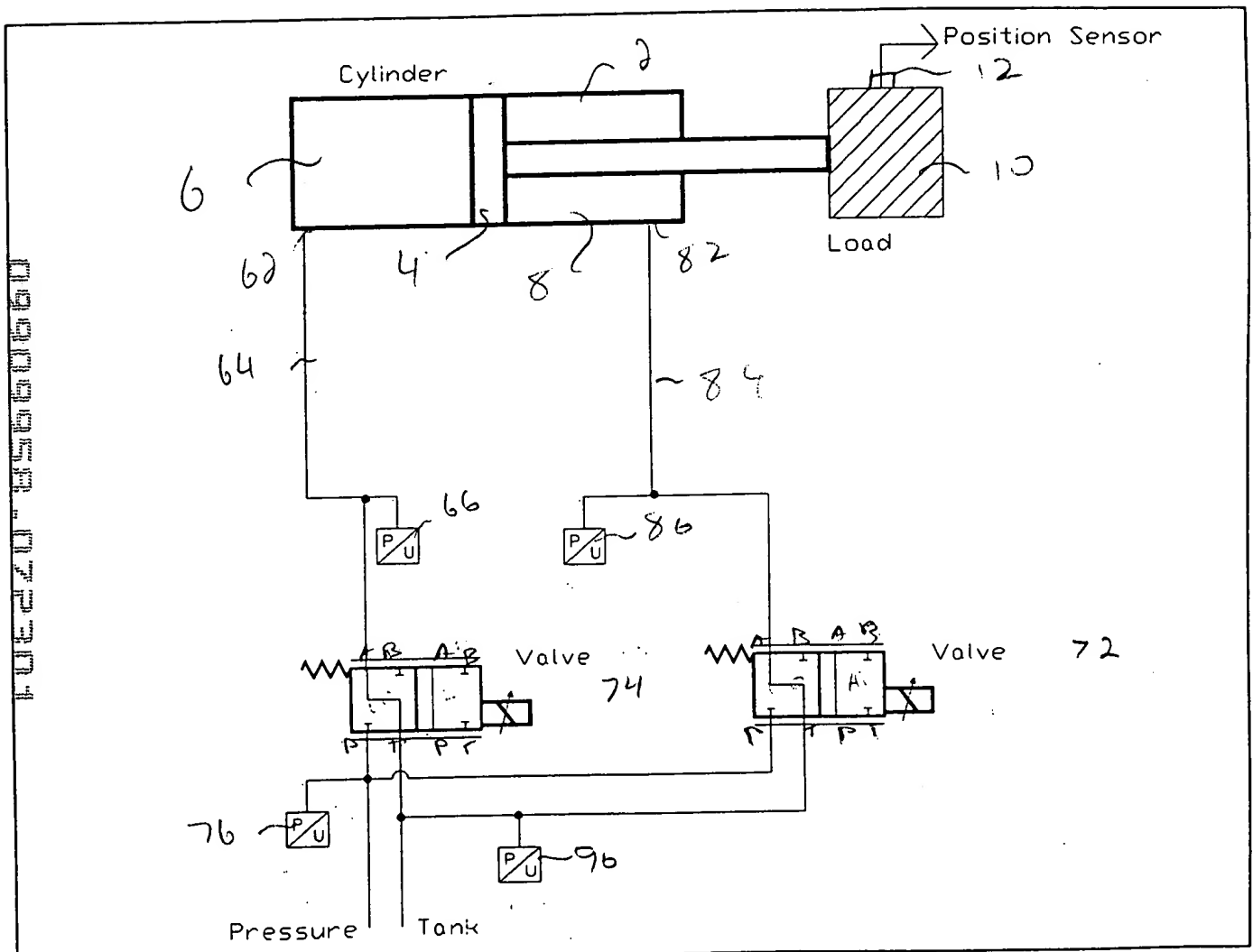


Figure 7